

CLAIMS

What is claimed is:

1. A turbine engine component having a trailing edge portion, said component comprising:

means for cooling the trailing edge portion; and

said cooling means comprising a plurality of rows of pedestals which varies into density along a span of the component.

2. A turbine engine component according to claim 1, wherein the number of rows of pedestals increases as one moves along the span of the component from an inner diameter region to an outer diameter region.

3. A turbine engine component according to claim 1, wherein the number of rows of pedestals in an outer diameter region of said component is greater than the number of rows of pedestals in an inner diameter region of said component.

4. A turbine engine component according to claim 3, wherein the number of pedestal rows in the outer diameter region is at least twice as many as the number of pedestal rows in the inner diameter region.

5. A turbine engine component according to claim 3, wherein there are seven pedestal rows in the outer diameter region and three pedestal rows in the inner diameter region.

6. A turbine engine component according to claim 1, wherein said cooling means further comprises a cooling passage having an inlet at the outer diameter of the component, which cooling passage provides a cooling fluid to said pedestal rows, and a plurality of slots along a trailing edge of said component through which said cooling fluid is exhausted, which slots are in fluid communication with a region containing said pedestal rows.

7. A turbine engine component according to claim 6, wherein said variable density pedestal rows optimizes trailing edge slot coolant Mach number and velocity with coolant air temperature rise and local thermal convective efficiency and performance.

8. A turbine engine component according to claim 1, wherein said component comprises a vane and said cooling means is located in an airfoil portion of said vane.

9. A turbine engine component according to claim 1, wherein said component comprises a blade and said cooling means is located in an airfoil portion of said blade.

10. A turbine engine component comprising:

an airfoil portion having an outer edge portion and an inner edge portion;

a cooling passageway located in said airfoil portion for providing cooling fluid to a trailing edge portion of said airfoil portion;

a plurality of cooling slots in said trailing edge portion for exhausting said cooling fluid; and

means for uniformly optimizing trailing edge slot coolant Mach number and velocity with coolant air temperature rise and local thermal convective efficiency and performance.

11. A turbine engine component according to claim 10, wherein said uniformly optimizing means comprises a plurality of rows of pedestals having a spanwise variable density.

12. A turbine engine component according to claim 11, wherein the number of rows of said pedestals adjacent said inner edge is less than the number of rows of said pedestals adjacent said outer edge.